



NATIONAL MARINE  
SANCTUARIES <sup>TM</sup>

Monterey Bay National Marine Sanctuary  
(MBNMS)

Multicultural Education for Resource  
Issues Threatening Oceans  
(MERITO)

**MERITO Program Report  
2002-2007**

September 9, 2008

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Office of National Marine Sanctuaries



NOAA Ocean Service



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## Multicultural Education for Resource Issues Threatening Oceans (MERITO)

### Accomplishments 2002-2007

During its first five years of implementation, MERITO distinguished itself with the following list of accomplishments:



- Reached a total of 998,101 residents in the Monterey Bay Area (Monterey and Santa Cruz counties). 23,834 of these residents were directly contacted through community and site based activities and programming, while an estimate of 974,267 more residents were potentially reached through indirect contact via mass media products.
- Participated in 48 community events reaching 19,549 people through these events.
- Expanded the “MERITO Academy” after-school program from 2 schools in fall of 2003 to 35 sites by spring of 2007, providing watershed and marine conservation hands-on field and in-class experiences to 971 5th through 8th grade students in the Watsonville, Pájaro, Salinas, Seaside and Marina areas.
- Implemented the “MERITO Academy Activity Guide” in draft version, which includes 35 bilingual lesson plans for 5th through 8th grade students focusing on watershed and ocean protection.
- Developed and produced a “MERITO Academy Resource Kit” for youth programs.
- Secured annual funding to train teachers and youth leaders, serving underrepresented 5th - 8th grade students, on watershed and ocean resource issues, from 2004-2007.
- Delivered 8 MERITO Academy Teacher workshops (serving 107 teachers & youth leaders), and participated in various other professional development trainings, serving an additional 273 educators, interpreters and youth leaders in California.
- Hosted 7 diversity initiative internships through California State University, Monterey Bay.
- Provided bilingual lesson plans on ocean and watershed conservation issues reaching out to 2,256 Spanish-speaking residents throughout Santa Cruz, Watsonville, Pájaro, and Salinas Adult Schools.
- Provided family field experiences related to ocean conservation issues, reaching out to 671 Spanish-speaking residents throughout Santa Cruz, Watsonville, Monterey, Pájaro, and Salinas.
- Developed and printed two marine conservation Spanish bilingual worksheets for local Adult School programs.
- Generated over \$250,000 in grant monies to support MERITO.
- Released and distributed the marine-themed storybook - *Coralito's Bay*, now being sold at venues such as Amazon Books, Borders Books, the Monterey Bay Aquarium and Monterey Bay Kayaks.
- Implemented an evaluation plan to assess performance and determine future directions for all MERITO programs and products.
- Generated newspaper articles, TV spots, and radio spots to highlight the program's involvement with the community.
- Expanded MERITO to the CINMS in 2005, defining new program directions after a needs assessment process specific to the Channel Islands region, and developed its implementation in FY06.

*MERITO is a facilitator of cross-cultural communication aiming to support ocean protection nationwide. Its primary role is to facilitate and ensure mutual understanding between the mission, goals, activities and rationale of the National Marine Sanctuary Program, and the views, interests, priorities, needs, and values of the diverse communities with which it interacts.*



## Mission

MERITO's mission is to help advance ocean literacy development among culturally diverse residents, and promote a culturally inclusive ocean stewardship ethic, engaging diverse communities to protect coastal and marine ecosystems.

## Overarching Goal & Audiences

MERITO is committed to providing programs and materials geared for diverse multicultural communities in order to increase public understanding of specific ocean-related issues within sanctuaries and promote community participation to address these issues. With limited resources, MERITO has initially focused on developing partnerships and programs serving Spanish-speaking residents and visitors, as they represent the largest and fastest growing constituency in the central California coast region. With full funding and implementation, MBNMS' MERITO program will strive to interact with a broader diversity of constituents residing in the central California coast, who may not only speak different languages but also represent different cultural contexts.

## Program Goals

- Foster multicultural participation and stewardship to protect marine and coastal resources in central and southern California.
- Increase general understanding of specific ocean-related issues, the ocean's influence on people, and people's influence on the ocean, among culturally diverse communities in the coast of California.
- Provide a forum for schools, universities, marine education organizations, and government agencies to advance multicultural ocean literacy outreach in the central and southern coast of California.
- Motivate culturally diverse students to pursue careers in sciences.

## History

The MERITO program was initiated in March 2001 after a community needs assessment, conducted in response to changing demographics in central California. Monterey Bay National Marine Sanctuary staff developed the initial plan after consulting with a variety of community members and stakeholders in the Monterey Bay region, in order to determine how to better serve its increasingly diverse constituency. Thirty individual meetings with community leaders representing local community groups, school districts, universities, non-profit organizations, city, state and federal agencies, and the farming community, provided valuable information resulting in a list of critical needs and guidelines for a multicultural education program. These needs were evaluated and grouped into step themes, which guided the MERITO program design and strategic plan. The resulting program has been implemented around four core components: 1) Community-based ocean outreach; 2) Site-based ocean outreach; 3) Professional development and internship program; and 4) Bilingual outreach products and media.



## Program Overview



## Program Overview

### History (cont.)

In 2005, MBNMS assisted the Channel Islands National Marine Sanctuary (CINMS) to expand and adapt the MERITO program to the Santa Barbara Channel region with support from the Office of National Marine Sanctuaries and the National Marine Sanctuary Foundation. Multicultural education and outreach had also been identified as a priority for southern California since 1999, during the management plan review process for CINMS. For MERITO Program expansion, a new needs assessment was conducted to determine the needs in marine and environmental education among culturally diverse audience in Santa Barbara and Ventura Counties, and a new strategic plan and program design were developed accordingly for multicultural outreach in southern California.

### Partnerships

MERITO education and outreach efforts are supported by collaboration and partnerships with a variety of non-profit organizations, government agencies, private youth programs, schools and other academic institutions, and local and national sanctuary foundations.

MERITO Partnership strategies include:

- Collaborating with other natural resource management agencies such as California State Parks, National Parks, and the National Estuarine Research Reserves Program to provide **site-based outreach** for culturally diverse youth and families
- Collaborating with public and charter schools, after school programs, and community-centered education groups to build upon and foster new **community-based education and outreach** for culturally diverse youth, adults and migrant families
- Collaborating with minority-serving institutions to develop and provide **teacher trainings and internships** for minority-serving teachers and undergraduate and graduate level students.

Monterey Bay MERITO Partners (2002-2007):

- Agricultural Land-Based Training Association (ALBA)
- Agriculture Water Quality Alliance (AWQA)
- Boys & Girls Clubs of Monterey County
- Bureau of Land Management
- California State Parks, Monterey District
- California State University, Monterey Bay (CSUMB) – Camp SEA Lab
- CSUMB - Earth System, Science & Policy Institute
- CSUMB - Recruitment In Science Education (RISE)
- CSUMB - Return of the Natives (RON)
- California Regional Environmental Education Community Network (CREEC)
- Channel Islands National Marine Sanctuary (CINMS)
- City of Watsonville - Parks and Community Services
- City of Watsonville - Public Works
- Consortium for Oceanographic Research and Education (CORE)
- Elkhorn Slough National Estuarine Research Reserve (ESNERR)
- Marine Advanced Technology Education Center (MATE)
- Moss Landing Marine Labs
- Monterey Bay Aquarium
- Monterey Bay Kayaks
- Monterey Bay Sanctuary Foundation (MBSF)
- Monterey County Office of Education - Migrant Education

- Monterey County Office of Education - Salinas Public Schools
- Monterey Peninsula Unified School District - After School Academy
- National Marine Sanctuary Foundation (NMSF)
- Pájaro Valley Unified School District (PVUSD)
- Patrick J. Fitz Wetlands Educational Resource Center
- Salinas Adult School
- Save Our Shores
- University of California, Santa Cruz's Mathematics, Engineering, Science, Achievement Program (MESA)
- Watsonville Adult Schools
- Watsonville Wetlands Watch

## Organization

While having initiated at the Monterey Bay National Marine Sanctuary (MBNMS), the MERITO Program is emerging as a regional and nationwide initiative of NOAA's Office of National Marine Sanctuaries. Funding support is currently administered through the Monterey Bay Sanctuary Foundation located in Monterey, California, and the National Marine Sanctuary Foundation located in Silver Spring, Maryland. Funding sources include NOAA's annual budget, federal grants (BWET, NSF...), and small grants from local community foundations and private industry (e.g. REI).

An estimate of 998,101 Hispanic residents were reached through direct and indirect contact, between 2002-2007:

Reached Population	FY03	FY04	FY05	FY06	FY07	5yr period
<b>Direct Contact</b>						
After-school Programs	35	65	228	251	392	971
Adult Programming	187	865	645	57	502	2, 256
Paid Internships	1	2	2	1	1	7
Family Field Experiences	383	161	103	0	24	671
Professional Development	40	61	89	34	156	380
Community Events	4, 445	6, 808	3, 112	2, 341	2, 843	19, 549
<b>Direct Sub-Total</b>	<b>5, 091</b>	<b>7, 962</b>	<b>4, 179</b>	<b>2, 684</b>	<b>3, 918</b>	<b>23, 834</b>
<b>Indirect Contact</b>						
Media and Advertisements	455, 900	0	0	0	518, 367	974, 267
<b>TOTAL Reached</b>	<b>460, 991</b>	<b>7, 962</b>	<b>4, 179</b>	<b>2, 684</b>	<b>522, 285</b>	<b>998, 101</b>

## Observations:

- Indirect Contact (media & advertisement) in FY03 refers to print articles in local press (Register Pajaronian, Salinas Californian, El Sol, Monterey County Herald, Santa Cruz Sentinel), TV News stories (KSBW and KSMS), and Radio PSAs (KLOK, KSES). The reported number is an approximation based on the number of impressions and estimated audience of TV and Radio shows.
- Indirect Contact in FY07 refers to: 1) Number of ads posted in public bus, resulting from a student cartoon contest; and 2) the reported number of hits to the MERITO website, (18,367 hits) over 4 years between 2004-2007.
- In FY05 the program shifted its emphasis from indirect community outreach to after school programming (which demanded more time from staff).
- In FY06 the program went through serious budget restrictions and one of the staff members was on maternity leave.

## Program Overview

This component of the program has been implemented through partnerships with school districts (adult school organizations, middle schools, migrant parent groups), local cities, and non-profit groups, to directly interact with members of the community, representing a broad range of ages and cultural backgrounds. The goal has been to promote and facilitate ocean and watershed protection within community-specific contexts, in terms of place, social interactions, and education institutions.

## 1. “MERITO Academy” After-school Program

### a. Description & Need:

MERITO Academy After-school is a year-long bilingual Science Program responding to an expressed need for more ongoing ocean and watershed science programs, and a broader exposure of Middle School students to careers in these fields within our region. This is especially relevant to the Latino communities in California, which are largely underrepresented in professional science fields, as their children often have to compromise their science learning at school in order to improve their English language proficiency. MERITO Academy provides culturally diverse and underrepresented 5th through 8th grade students the opportunity to experience meaningful hands-on watershed and ocean science activities, both in class and outside in local natural areas, with the assistance of scientists and experts. The program utilizes public and private field trip opportunities such as visits to the Watsonville Wastewater Treatment Plant, Monterey County Waste Management District, guided tours at the Monterey Bay Aquarium, and a variety of field experiences taking place at ESNERR including native plant restoration, plankton tow, and crab monitoring. These experiences expose students to careers in science and encourage pride and stewardship towards their local environment.

At the same time MERITO Academy Staff provides support to minority-serving teachers and youth leaders in the form of professional trainings, teaching resources and materials, and on-site staff support and expertise. Through growing partnerships with local public schools and non-profit programs throughout Watsonville, Pájaro, Salinas, Seaside, and Marina, over the past five years MERITO has trained 107 middle school teachers and leaders serving culturally diverse and underrepresented students. In support of this program, a 35-lesson curriculum delivered as the “MERITO Academy Activity Guide” has been developed in collaboration with local schools, extended learning programs and regional environmental education providers, such as ESNERR, Monterey Bay Aquarium, local waste water treatment plants and landfills, CSU Monterey Bay’s Return of the Natives, the City of Watsonville Environmental Program, Whales on Wheels, among others. This Activity Guide is aligned to California State Standards in mathematics, science, language arts, visual and performing arts, and English language development (more details on the Activity Guide are provided in Part IV: MERITO Outreach Products & Media).



## **b. Observations:**

Over the past five years, MERITO Academy has served 971 5th – 8th grade students (most of them bilingual and bicultural), and it has expanded from 2 schools in 2002 to currently over 35 different school sites in the Monterey and Santa Cruz Counties.

The program has been evaluated for attitudinal change, experiences in nature, concepts in conservation, and career opportunities in science. Evaluations have been implemented at the beginning and end of each academic year in order to assess the change in responses before and after the program. Based on evaluation results from 2004-2006 and feedback from teachers running the programs, students at the end of the year have shown an increased conceptual understanding of watershed and ocean issues, enhanced their ability to describe the connection between watersheds and oceans, stated an increased intention to recycle, and been able to describe a larger number of careers in science.

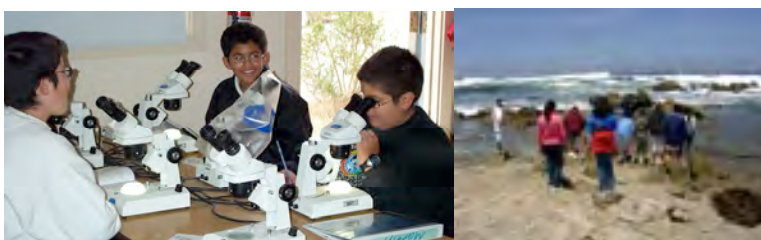
MERITO has recently obtained funds through an NMSF - Hollings Ocean Awareness Trust grant to produce an educational DVD and develop a seventh module for the MERITO Academy Activity Guide. The DVD will be incorporated into the “Ocean Stewards Kit” that is provided to teachers at the beginning of each program year with the Activity Guide. The additional module for the guide will focus on key environmental issues illustrating our direct personal connection to the ocean.

## **c. Recommendations:**

MERITO Academy should continue to be implemented at current sites. Expansion to other sites is not recommended at this point, unless any of the current sites drops off the program. A maximum operating capacity of 30-35 schools needs to be acknowledged. Evaluation tools need to be enhanced.

## **d. Evaluation tools used:**

- Pre and post-test for students relative to their knowledge of watershed and marine issues
- Ongoing field journals
- Student demonstration projects
- Oral presentations to parents during Family Watershed Night
- Student progress was also measured by the student’s ability to make scientific observations in the field and to develop questions about various environmental issues, test these questions using appropriate scientific methods, and apply the results of these tests and observations to overall environmental health and the policy decisions that would be affected by this knowledge.



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## 2. MERITO Partnership with Salinas and Watsonville Adult Schools

### a. Description & Need:

MERITO partnership with Adult Schools in Salinas and Watsonville has focused on reaching out to mainly Hispanic residents enrolled in English as a Second Language (ESL) and English Language Civics (ELC) programs. Through this partnership MERITO has provided bilingual adult education in the form of interactive presentations, instructive materials, and site-based learning opportunities, contributing to inform Hispanic community members about specific issues threatening marine and coastal environments. This responds to a need for involving a broader sector of California's culturally diverse constituency in decision-making processes (and practical activities) affecting ecological integrity and people's livelihoods around Sanctuary waters.

In 2002 MERITO's Bilingual Education Specialists developed and piloted a two-hour interactive presentation at Pájaro Valley Unified School District's Watsonville Adult School. This bilingual presentation was further refined and it continued to be implemented as the MERITO Adult Ed Unit, over the past five years in Watsonville and Salinas Adult Schools. The Unit includes a PowerPoint presentation with information about the Monterey Bay National Marine Sanctuary, coastal water quality issues, and other issues affecting the Sanctuary. It also includes an interactive demonstration of a Watershed Model (EnviroScape®) to illustrate the connection between land-based activities and ocean water quality. Written activities focused on language development and MBNMS Worksheets are provided to teachers and students at the end of the presentation. At the end of the two-hour session, participants are encouraged to attend several site-based learning opportunities such as Día del Niño and family field trips to natural areas like Elkhorn Slough (free passes to the ESNERR are handed out) and inter-tidal rocky areas along the coast (to explore tide pools). They are also presented with ways to get more involved in proactive ocean protection through current volunteer opportunities, upcoming community events focused on watershed protection, and Coastal Cleanups. Finally, MBNMS, ESNERR, and California State Parks informational brochures are handed out to all students.

### b. Observations:

Based on feedback from Adult School staff, the MERITO Adult Ed Unit was well received and effectively provided information on watersheds and marine conservation issues. Each year, Adult School staff continued to request the Adult Ed Unit, resulting in a total of 2,256 Hispanic adults being directly contacted through MERITO between 2002 and 2007.



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### c. Recommendations:

Develop a project-based Adult Education Curriculum, which allows for a longer-term interaction with adult students. Such curriculum could engage adult students in a more in-depth, on-going, and practical consideration of the reciprocal interaction between ocean health and human activity. The contents of this curriculum would have to be flexible and adaptable to meet specific needs and particular interests being relevant to the participant's livelihoods. In this context different thematic units and applied projects can be developed to explore in more detail issues like Marine Protected Areas, Habitat protection, Wildlife Disturbance, Connections between economic systems and ocean health, etc, as they affect or interact in some way with participant's livelihoods. This curriculum could use an Activity Guide, aligned with NOAA's Ocean Literacy Essential Principles and Fundamental Concepts and the California State ESL teaching standards for different English language levels. The Adult Education Program also needs to develop and implement an effective evaluation tool considering the often-low literacy level among adult students.

With additional funding, MERITO can develop a pilot adult education volunteer program in collaboration with local cities and other environmental organizations. Adult students participating in the lessons and field experiences would then have the opportunity to participate in volunteer activities focused on watershed and ocean protection, such as storm drain stenciling, beach and neighborhood clean-ups, and native plant restoration. Eventually, trained volunteers could become volunteer leaders and help coordinate and multiply local volunteer opportunities in their communities.

### d. Evaluation tools used:

- Oral feedback
- Pre and post presentation survey
- A better evaluation protocol needs to be developed

## 3. MERITO Partnership with Monterey County Office of Education - Migrant Education

### a. Description & Need:

This partnership has focused on field-trip opportunities for students in grades 4-8, enrolled in migrant education programs, as part of on-going collaboration between MERITO and Region XVI Migrant Education to expand marine education and outreach opportunities to diverse students. During 2001-2003, MBNMS staff, as requested by Migrant Education Coordinators, provided several summer tidepool field trips. The students prepared for the field trips by studying their favorite tidepool animal or plant, and learning how to be responsible "Tidepool Explorers." Prior to delving into the tidepools, leaders reviewed etiquette and rules to ensure both people and tidepool inhabitant's safety. They also discussed tides, intertidal zones, and animal adaptations to rocky shore life. A ninety-minute visit to the rocky intertidal site was the highlight, as small groups of students, accompanied by sanctuary staff and adult chaperones, explored and discovered an amazing array of tidepool life. The visit concluded with a discussion on natural and human impacts on tidepools.

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## Community - Based Outreach

### **b. Observations:**

Ms. Marsha Epps, a teacher with Gavilan View Middle School comments - *"My students love coming to the tidepools! Many have never even gotten their feet wet in the ocean. Visiting the tidepools really helps them understand why the ocean is such an amazing place."*

### **c. Recommendations:**

Continue and expand this program during the summer months, focusing on engaging community members from Salinas. A lapse in funding and staff availability prevented programming after 2003. Efforts to re-establish this partnership have been initiated.

### **d. Evaluation tools used:**

- Numbers reached: 175 students participated from 2001-2003.

## **4. MERITO Partnership with local School District's Migrant Parent Conferences**

### **a. Description & Need:**

Working with local School District's Migrant Education Programs, MERITO has participated in Migrant Parent Conferences in Salinas and Watsonville. During these conferences, MERITO staff has directly talked to over a hundred migrant parents about marine and watershed issues affecting both ocean's health and people's livelihoods. MERITO staff has also conducted interviews with parents to learn more about their knowledge of the sanctuary and environmental issues of their concern.

### **b. Observations:**

Between 2002-2004, MERITO staff conducted 98 surveys with Latino community members from the Watsonville and Salinas areas at migrant parent conferences. These surveys were used to collect front-end data to better understand what people know about local environmental issues and also what types of outdoor experiences, if any, they would be interested in. In all three years, roughly 30% of the interviewed population said they knew or had heard about the MBNMS. The remaining 70% had not heard about it.

Kayaking and Restoration Activities appeared to be the preferred outdoor experiences to the interviewed families. Responding to these findings, MERITO staff developed a site-based program component called Family Field Experiences, in order to offer community members a variety of watershed and ocean hands-on experiences, which they would otherwise not have.

### **c. Recommendations:**

Continue to participate in Migrant Parent Conferences to learn more about families perceptions and interests, and explore the potential for providing workshops during future conferences.

### **d. Evaluation tools used:**

- Bilingual interview tool

## 5. MERITO Partnership with Consortium for Oceanographic Research and Education (CORE)

### a. Description & Need:

MERITO staff worked closely with CORE (2003-2005) on a new diversity initiative in order to expand participation of high schools students in the annual National Ocean Science Bowl (NOSB) competition. MERITO staff served as the diversity initiative coordinators for the Northern California region feeding into the national competition occurring annually in April. The goal of the NOSB diversity initiative is to increase the number of culturally diverse and underrepresented students in the marine sciences. MERITO shares the same goal, and is therefore assisting with the recruitment of new school, teachers and student teams fitting the above criteria. With the CORE funding, each year MBNMS was able to offer weekend enrichment opportunities, textbooks for group study, and field-based experiences. As part of this initiative, 8 teams were recruited over the 3year period.

### b. Observations:

Federal funding for this program fluctuated and was subject to continuing resolution, making the Nov-Mar program extremely challenging. The NOSB regional competition has moved from the Monterey Bay area to the San Francisco Bay area. Other agencies are coordinating the diversity initiative as well to enhance underserved participation in various regions of the state.

### c. Recommendations:

Currently, MERITO Program's primary student audience is middle school and not high school, so we will not participate in NOSB in the near future.

### d. Evaluation tools used:

- Number of student, teacher and school teams involved in the NOSB program.

## 6. MERITO Volunteer Opportunities

MERITO has worked in partnership with California State University Monterey Bay's (CSUMB) Service Learning Institute to offer service-learning opportunities to undergraduate students. CSUMB requires 30hrs of service learning as part of their undergraduate course work. 3 students have worked as volunteers with MERITO, assisting the team with community and site-based programs, promoting understanding of the MBNMS through the MERITO Academy after-school program, leading field experiences and in-class presentations, and participating in adult education presentations and community events. Being Spanish-bilingual is one of the requirements to volunteer with MERITO. Volunteers also assist in developing bilingual products and conducting community surveys. Service learning students have provided valuable help to implement MERITO programs and mission, while benefiting themselves from an exposure to potential careers in marine science and education. This experience also provides them with a grounded basis and context to develop their knowledge of watersheds, marine ecology, environmental policy and resource management.



**Community -  
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## Summary of Community-Based Program during 2002-2007

Over the past five years, MERITO has worked with over 35 middle schools through the MERITO Academy after-school program, reaching over 971 culturally diverse 5th - 8th grade students. MERITO has also provided watershed and marine conservation presentations to 2,256 Hispanic adults and will expand partnerships with other adult schools. Through community surveys, MERITO has been able to gather front-end information about the Hispanic community's knowledge on the Sanctuary and its issues. Overall, through Community-Based Outreach programs and partnerships, MERITO has conveyed ocean literacy and sanctuary conservation messages to a wide range of community members, contributing to increase general awareness of issues affecting marine and coastal environments.



**Community -  
Based  
Outreach**

# SITE-BASED OCEAN OUTREACH



The purpose of this program component is to interact with, and offer field experiences to, culturally diverse adults and youth (both residents and visitors) at specific sites within the Monterey Bay National Marine Sanctuary, and during widely attended Community Events taking place at specific locations around the Sanctuary. The main goals of site-based outreach include:

- Increase visits to local natural areas and protected ecosystems for recreational and educational purposes especially among Latino communities.
- Identify needs and provide bilingual translations for Hispanic visitors utilizing the sites.
- Offer field-based learning opportunities on ocean and ecological literacy to culturally diverse students and their families.
- Promote stewardship and collective protection of coastal and ocean ecosystems.

## 1. MERITO Family Field Experiences

### a. Description & Need:

Family Field Experiences were created in response to MERITO's initial needs assessment in 2000. Survey data indicated adults and families where interested in exploring nature through guided experiences. Since 2003, MERITO has been working with the Elkhorn Slough National Estuarine Research Reserve, Monterey Bay Kayaks, and local School Districts, among other partners to lead a series of Spanish-English bilingual family field experiences each year. The goal of this program is to provide an opportunity for families to engage in meaningful experiences with nature, especially among communities who are not usually exposed to watershed or marine-related outdoor hands-on experiences.

MERITO Family Field Experiences constitute powerful learning opportunities, promoting the protection of wildlife and its habitats, and bringing a personal connection to watershed and ocean ecological integrity among participants. Adult students and their families from the MERITO Adult Education Program are invited to field experiences as a follow up to the classroom activities. Three Family Field Experiences have been designed, each one being offered twice a year:

***MERITO Tidepool Day:*** A Spanish bilingual field experience focusing on natural history and conservation of intertidal ecosystems and wildlife in rocky shores at the MBNMS.

***MERITO Kayak Day:*** A Spanish bilingual field experience where families paddle along the waters of Elkhorn Slough while learning wildlife viewing guidelines, natural history and conservation of the Elkhorn Slough and the Monterey Bay National Marine Sanctuary waters.

***MERITO Elkhorn Slough Hike Day:*** A Spanish bilingual field experience where families hike the trails of the Elkhorn Slough while learning about its natural history, conservation and its connection to the MBNMS.



## Site-Based Outreach





## b. Observations:

These experiential trips have received a very positive response from participants, and have proven highly successful in connecting the community with their ocean and coastal resources. At the end of each field experience groups gather in a circle to share their impressions. The following are translated impressions from Spanish speaking participants:

*"This experience inspires me to go home and teach others how to conserve our natural places, the earth, the ocean, all that we are given, to leave something for our children, our future. We are exhausting everything and we need to learn more from people like you who are teaching the importance of protection."*

*"I never realized there was so much life and so many plants and animals in this environment."*

*"Learning about the watershed, how everything that goes into the water can get into the sanctuary. How if water goes over a parking lot with oil in it, oil can get into the water."*

*"We feel like a family today, coming together to protect the same things."*

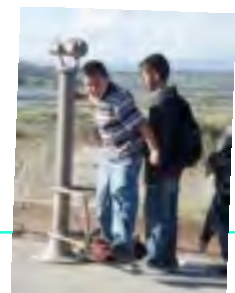
As part of the evaluation, MERITO staff conducted pre and post event phone interviews from October 2003 to May 2005 asking two questions: "What does the word watershed mean to you?" and "What do you know about the MBNMS?" A comparison of the responses before and after the experience demonstrated an increased knowledge in relation to both questions among 65% of the participants.

## c. Recommendations:

Continue to offer a fall and spring series of this kind of field opportunities. Continue to recruit participants from the local adult schools in Watsonville, Salinas, and Seaside. Try to provide transportation to and from field sites, as this greatly influences attendance numbers. Enhance the evaluation protocol and tools. Work with partners to recruit families through other programs.

## d. Evaluation tools used:

- Oral and written testimony offered by participants
- Pre/post-event phone interviews
- Track where participants heard about the events
- Media coverage - Article in the Monterey Herald: "Learning the language of nature" – "Elkhorn Slough: Latino Immigrants explore sanctuary." Posted on Mon, Mar. 31, 2003.



## 2. MERITO Partnerships with Local Community Supported Events

### a. Description & Need:

Participating in local community events has been a major outreach strategy of MERITO. In partnership with various regional groups, MERITO staff has been involved in a variety of events informing communities about the sanctuary and providing bilingual marine and watershed conservation messages. These events have served as a platform for building awareness and informing diverse communities about ocean and watershed related issues including water quality, pollution, solid waste and marine debris, wastewater, beach closures, sustainable fishing, marine reserves and ecological integrity in general. They have also served to offer people concrete opportunities to become more involved in ocean and watershed protection.

### b. Observations:

Through local community events MERITO has directly reached 19,549 citizens representing a diversity of communities in the area. In most of these events MERITO has encountered a very receptive audience, as many community members are already involved in some form of conservation activity. Key events include: California Coastal Cleanup Day, City of Watsonville's Día del Niño (Children's Day), Earth Day, Monterey Bay Aquarium's Día del Niño, Santa Cruz County Fair "World of Water" and Elkhorn Slough's Mother's Day. MERITO staff has also supported annual sanctuary education events including the Ocean Fest, Whale Fest, Sanctuary Symposium, and the Shark Fest, resulting in additional outreach to over 50,000 residents.

Over the past five years MERITO has participated in the following annual events:

- Conferencia Familia "Migrant Parents: Cultivating Future Leaders"
- Día del Niño with Monterey Bay Aquarium
- Día del Niño / Earth Day with the City of Watsonville
- California Coastal Cleanup
- Castroville Artichoke Festival
- CSUMB's Recruitment In Science Education Family Science Day
- Family Farm Day in Salinas
- Santa Cruz County Fair "World of Water"
- Science and Ocean Days with Local Public Schools
- Mother's Day at Elkhorn Slough
- World Ocean's Day at the Monterey Bay Aquarium
- AWQA and ALBA events



**Site-Based  
Outreach**

### c. Specific event descriptions:

#### - *Partnership with CSUMB's Recruitment In Science Education (RISE) Program:*

As part of a Bay Watershed Experiential Training (B-WET) grant and a USDA grant, MERITO collaborates with the RISE Program to deliver bilingual marine-related events and field experiences for RISE families. RISE supports and encourages under-represented middle and high school students from the Salinas and Monterey Bay areas to expand their interest and skills in science while providing them the tools and inspiration to attend college. Their mission is to enhance diversity in the sciences. MERITO has participated in their annual California State University Monterey Bay's RISE Science Day. The event provides a series of hands-on science lab sessions, science careers information, and preparation to enter college for RISE participants and their families. MERITO sessions have focused on water quality testing of local creeks and ponds, urban runoff and marine science careers. Each event averages over 120 participants. Following up to these events, MERITO has also facilitated a series of Spanish bilingual family field experiences, such as RISE Kayak Day, RISE ESNERR Hike, and RISE Tidepool Day.

#### - *Día del Niño with Monterey Bay Aquarium (MBA):*

MBNMS Education staff has been participating in the annual MBA Día del Niño (Children Day) celebration. Watershed model demonstrations and "touch and feel" box activities are normally hosted by MBNMS during these events. Children get a free admission to the Aquarium and they are provided with a variety of hands-on activities, music, and dance. The event averages 7,800 visitors, of which at least 1,000 Hispanic visitors participate in MERITO activities.

#### - *Día del Niño & Earth Day with the City of Watsonville:*

MBNMS, Save Our Shores, Watsonville Wetlands Watch, Elkhorn Slough National Estuarine Research Reserve, Ecology Action, Camp SEA Lab, Resource Conservation District, ALBA and the City of Watsonville Public Works have teamed up to provide a special "Earth Day" component of the City's annual Día del Niño celebration. Family-oriented, environmental education activities have included litter cleanups and nature walks. Music, dancing, free food round out each event. These events average 3,000 participants, of which at least 300 have participated in MERITO activities every year. During the 2003 event, MBNMS Education and Outreach Coordinator presented both Monterey Bay Kayaks and Hannah Nevins with NOAA's Environmental Hero Awards for their dedicated commitment to sanctuary programs and environmental conservation.



### Site-Based Outreach

**- Mother's Day at Elkhorn Slough:**

This event includes free flowers for mothers, live music, free food, walking tours, a bilingual puppet show by Save Our Shores and activity booths for all ages. ESNERR, the Elkhorn Slough Foundation, Watsonville Parks and Community Services and MBNMS provide activities, arts and crafts. MERITO staff has provided bilingual hikes and hosted a booth with activities including watershed model demonstrations and the "touch and feel" box. This event averages 400 participants each year.

**d. Recommendations:**

Continue to participate in community-supported events and seek other local events with high Hispanic participation particularly in the Salinas valley. Develop new Spanish bilingual deliverable materials to help reinforce conservation messages (i.e. cartoon contest posters, calendars, MBNMS fact sheets, coloring books, etc).

**e. Evaluation tools used:**

- Numbers of people reached.

**3. MERITO Partnership with California State Parks, Monterey District**

**a. Description & Need:**

MERITO and California State Parks have worked together in identifying potential venues and products to reach the Latino community and increase visitation of Latino-dominated school groups to Park sites. This partnership has especially focused on Coastal Cleanup Day as a potential venue to increase Latino family involvement in watershed protection.

MBNMS has co-sponsored Coastal Cleanup Day in Monterey County as part of the MERITO program. MERITO and California State Parks have also worked with a local Spanish radio station to promote new Cleanup sites and new teams among Spanish speaking residents. Radio PSA's and bilingual flyers posted throughout the Monterey County led to establish a new site at Salinas River State Beach, where most of the participants are Latinos. MERITO team members have also acted as Spanish-bilingual beach captains in an effort to encourage Latino community participation in these events.

Partnering with California State Parks MERITO staff also produced in 2003 a Sanctuary Junior Ranger Adventure Guide. This bilingual educational material is a fun, learning tool for young students focusing on watershed and ocean protection, and currently being distributed at five state park sites along the coast in Monterey County.

**b. Observations:**

Since 2003, over 400 volunteers have participated in the Salinas River State Beach Coastal Cleanup. 60% of the participants represent Latino communities. MERITO staff agreed this turnout has been very successful, and attributed the high participation to the Spanish radio PSA's and flyers.



**Site-Based  
Outreach**



#### **c. Recommendations:**

Continue this partnership for each annual event. MERITO staff should continue to participate as beach captains, assisting Spanish-speaking participants and ideally training potential new team leaders.

#### **d. Evaluation tools used:**

- Number of participants.

### **4. MERITO Partnership with Elkhorn Slough National Estuarine Research Reserve (ESNERR)**

#### **a. Description & Need:**

MERITO works with ESNERR encouraging visitation to natural areas and protected ecosystems among culturally diverse communities in the Monterey Bay area. Three main partnership projects have been identified after four planning meetings between ESNERR and MBNMS staff: 1) provide bilingual support for Latino families joining weekend tours at ESNERR, 2) Identify need and develop bilingual materials for visitors, and 3) Promote community events such as Mother's Day at Elkhorn Slough.

Potential support materials to be developed as part of this partnership include: 1) ESNERR Trail Guide in Spanish, 2) Spanish translation of exhibit text at ESNERR Visitor Center, 3) Technical glossary in Spanish to be used by ESNERR staff, 4) Bilingual Scavenger Hunt worksheets adapted to Visitor Center exhibits for K-12 students.

Increasing visitation to protected coastal areas provides people an opportunity to better understand land-sea connections. MERITO-ESNERR partnership addresses this need through community-based programs and free ESNERR passes given to community members during adult education presentations, field experiences, and community events.

#### **b. Observations:**

Visits to ESNERR by Latino communities is significantly low. However, through community events, family experiences and After School programming, MERITO has contributed to expose more Latino communities to this special place, encouraging them to visit it more often and in higher numbers.

A Bilingual Scavenger Hunt worksheet has been created and is currently being used by school groups visiting the slough, including the MERITO Academy After-school program. This scavenger hunt is included in the Wetlands Module of the MERITO Academy Activity Guide.

A total of 85 Hispanic adults and children visited the ESNERR during Mother's Day celebration between 2003-2005. MERITO staff assisted the event planning each year and provided bilingual hikes and materials for visitors. Unfortunately, this event was cancelled during 2006 and 2007 due to funding and staff limitations.

### c. Recommendations:

More effective ways of promoting visitation to the ESNERR among Hispanic communities need to be implemented. Alternatively, obstacles such as transportation, which may limit the number of visitors, need to be addressed. If Hispanic visitation increases, a needs-assessment should be conducted with visitors at that time, in order to design and deliver appropriate education tools. Building community interest and awareness about ESNERR can occur more effectively through targeted outreach in the community. Therefore, greater emphasis should be placed on providing community-based outreach.

### d. Evaluation tool used:

- Scavenger Hunt teacher feedback
- Demographic surveys
- MBNMS/ESNERR staff observation
- Tallied number of Elkhorn Slough passes redeemed
- Latino family attendance to Mother's Day at the Slough



**Site-Based  
Outreach**

## 5. MERITO Partnerships with California State University Monterey Bay (CSUMB) - Camp Science.Education.Adventure (SEA) Lab

### a. Description & Need:

Supported by a NOAA Environmental Ocean Literacy Grant, this three-year partnership will run from September 2006 – August 2009. MERITO has been working closely with Camp SEA Lab to develop and implement residential and non-residential science camp and related programs to disseminate Ocean Literacy Principles via experiential learning. MERITO has served as Camp SEA Lab's key outreach mechanism to reach underserved youth and their families providing MERITO youth with the opportunity to apply for scholarships to attend week-long summer programs.

### b. Observations:

During the summer of 2007, 48 MERITO youth were offered full scholarships to attend week-long residential and day-camp summer programs offered by Camp SEA Lab.

Eight MERITO students attended one week at either of the following day camps: 1) Elkhorn Slough and You! or 2) Seals and Sails. Forty MERITO students attended one of four residential camps: 1) Waves to Watersheds (housed at Hidden Falls Camp in Soquel); 2) Fishing for Adventure (housed at CSU Monterey Bay); 3) Keepers of the Coast (housed at UC Santa Cruz); 4) Girls Love Science (housed at UC Santa Cruz).

### c. Recommendations:

MERITO staff encountered several difficulties and cultural boundaries while recruiting students for 2007 summer scholarships. Lessons were learned from the 2007 summer season and new culturally appropriate methods will be applied in the coming years.

### d. Evaluation tools used:

- Pre and post student surveys



**Site-Based  
Outreach**

## Summary of Site-Based Program for 2002-2007

During this five-year period MERITO provided site-based family field experiences related to ocean conservation issues, reaching 671 Spanish-speaking residents throughout Santa Cruz, Watsonville, Monterey, Pájaro valley, and Salinas areas. MERITO staff also participated in over 48 local community events, directly interacting with 19,549 Hispanic community members. Community-Based Programs and Site-Based Programs are highly complementary and as such they need to be implemented synergistically. Each year MERITO has been able to add a marine conservation component to various events, which previously did not have one. MERITO staff will continue to participate in future community events.



**Site-Based  
Outreach**

## PROFESSIONAL DEVELOPMENT & INTERNSHIP PROGRAM

This program component is designed to empower, support, and provide teaching resources to educators and youth leaders who serve culturally diverse and underrepresented communities around the Monterey Bay National Marine Sanctuary, and provide increased paid-internship opportunities for college students who are underrepresented in science.

### 1. MERITO Academy Teacher Training

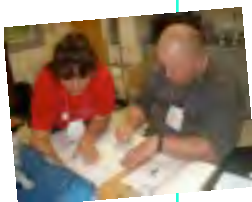
#### a. Description & Need:

The MERITO Academy trainings respond to an identified need for professional development opportunities, offering theoretical background and practical training on marine and watershed science to teachers and youth leaders serving underrepresented communities. Teachers and youth leaders are provided with pedagogical tools, teaching resources, and community contacts, geared to provide culturally diverse students with meaningful experiences in nature, and to incorporate locally relevant watershed and ocean issues into public education and extended-learning programs. These trainings are an integral part of the MERITO Academy after school program, and are required for all the teachers and site coordinators involved in it.

During the training, site coordinators receive an Activity Guide and a Resource Kit including materials to help implement watershed and ocean based activities. Each site also receives a transportation and materials scholarship to use during the implementation of the program. Practical demonstrations of selected lesson plans, included in the MERITO Academy curriculum, guide trainees on how to implement field and in-class activities from the Activity Guide. The training also emphasizes pedagogical considerations and tools, geared to adapt the curriculum presentation and implementation to a multicultural audience.

#### b. Observations:

Since 2003, MERITO staff has collaborated with the Pájaro Valley Unified School District (PVUSD), Monterey County Office of Education (MCOE), the Boys & Girls Clubs of Monterey County (BGCMC), California State University Monterey Bay's RISE program, and other after-school programs to provide 3-day workshops on watershed and ocean resource issues for teachers and youth leaders serving underrepresented 5th - 8th grade students. Over the past five years, MBNMS-MERITO has delivered 8 professional development workshops, training 107 teachers and youth leaders, who are implementing the MERITO Academy after-school program in Monterey and Santa Cruz counties.



**(cont.)** Annual trainings are broken down into a 2-day summer session and a 1-day follow-up session in the winter. Summer sessions, hosted by the Elkhorn Slough National Estuarine Research Reserve (ESNERR), introduce participants to concepts related to watersheds, multicultural education and teaching strategies, and help participants familiarize with the MERITO Academy Activity Guide. This session provides hands-on demonstrations of lesson plans and activities including water quality monitoring, invasive crab monitoring, and field trips to the slough. It also guides participants to develop a preliminary year schedule to implement the program at their respective sites. The follow-up sessions in the winter have been hosted at different partner sites each year (ESNERR in 2003 and 2004, Monterey Bay Aquarium in 2005, and the Fitz Wetlands Educational Resource Center in 06/07). Follow-up sessions provide additional training on specific lesson plans and field activities, such as tidepool explorations, sand crab monitoring, and mudflat explorations. These sessions also serve to evaluate teachers' needs, challenges, and progress at each site, using peer-to-peer sharing to brainstorm solutions and troubleshoot new teaching strategies.

### **c. Recommendations:**

Continue the MERITO Academy Teacher Training and expand the program to more teachers and sites in the Salinas area. Continue implementing surveys and gathering feedback from teachers to inform formative and long-term summative evaluation of this professional development program.

### **d. Evaluation tools used:**

- Pre and Post teacher workshop survey (professionally developed and reviewed), per summer and winter session

## **2. MERITO Partnership with Moss Landing Marine Laboratories**

### **a. Description & Need:**

This partnership addresses an identified need to provide more in-depth professional development on marine sciences to pre-service and in-service teachers serving diverse students in central and southern California schools. MBNMS-MERITO has partnered with the National Hispanic University (NHU), CSUMB, and Moss Landing Marine Labs (MLML) to provide an annual Summer Teacher workshop focusing on marine sciences, and targeting Hispanic-serving teachers in the region. The five main objectives of these workshops include:

- Provide K-12, Hispanic-serving teachers, with content support and teaching materials to educate their students about marine resource and conservation issues.
- Assist teachers on how to access resources from a regional network of marine-related organizations available to them, and develop peer support groups to strengthen ongoing curricula.
- Work with partners to develop or utilize existing curricula on ocean-related issues, maintaining alignment with State and National standards.
- Develop and implement a professional development Evaluation Plan.
- Provide transportation, teacher stipends, printed curricula, and ongoing program support to all participants.



#### **b. Observations:**

MLML and MERITO were awarded a joint grant from NOAA Bay Watershed and Education Training (B-WET) program to implement the project titled "Incorporating Marine Research and Resource Issues into Public Education" based on the five objectives stated above. 40 teachers were trained during 2003 and 2004 summer sessions. MERITO staff gave presentations on sanctuary and watershed issues during the first day of a five-day teacher workshop with Moss Landing Marine Laboratories.

#### **c. Recommendations:**

Funding and staff turnover forced an interruption in MERITO participation 2005-07. This partnership has resumed in 2008.

#### **d. Evaluation tools used:**

- MLML was the lead agency, and utilized pre/post surveys and teacher satisfaction surveys

### **3. MERITO Partnership with California State University Monterey Bay (CSUMB) -Diversity Internship Program.**

#### **a. Description & Need:**

The Diversity Internship program responds to an identified need to increase representation of Hispanic communities in academic careers and professional fields of science. Through this partnership MBNMS-MERITO and CSUMB offer paid internships and job training opportunities, focusing on marine and watershed subjects, to Hispanic undergraduate and graduate level students. Since 2003, CSUMB has received funding from NOAA's Environmental Entrepreneurship Program/Minority Serving Institution (NOAA-MSI) to support this goal. During their internship with MERITO, interns develop a learning plan including key outcomes they will focus on, such as teaching methods, Spanish and English presentation skills, demonstrating the watershed model to families, and developing greater knowledge of the MBNMS and ocean related concepts.

#### **b. Observations:**

Between 2002 and 2007, MBNMS-MERITO hosted 7 Hispanic students as interns for 6-12 months each. MERITO and CSUMB staff collaborated to recruit, train, and mentor interns to assist MBNMS staff with implementing MERITO program components, collecting survey data, translating outreach materials, and providing bilingual interpretation during community events. This internship program has proven to be a valuable mechanism to expose and engage college students to professional experiences and career opportunities in science, and increasing their understanding about watersheds, marine ecology, environmental policy, and resource management challenges. At the same time, due to their Spanish-bilingual skills, interns have provided valuable help to implement MERITO programs and mission, while becoming a model to follow by other Hispanic students and families.



## **Professional Development & Internships**

### **c. Recommendations:**

Continue and expand the internship program. Various academic institutions in this region have indicated their interest in placing interns into the MERITO program. Monterey Institute of International Studies, University of California Santa Cruz, Monterey Peninsula Community College, and Hartnell Community College, to name a few. Additional funds are needed to pursue this expansion. MERITO partners such as Elkhorn Slough National Estuarine Research Reserve and California State Parks have also expressed interest in recruiting culturally diverse interns to augment their programs.

### **d. Evaluation tools used:**

- An intern and mentor self assessment survey
- An internship performance feedback survey
- Intern oral presentation at CSUMB
- Final internship report

## **4. Participation in other professional development trainings and informational sessions.**

### **a. Description & Need:**

In relation to an identified need to strengthen a network and forum for multicultural education on ocean-related issues, MERITO staff has been invited to present and lead short sessions at various professional development trainings and public events regionally, nationally, and internationally.

### **b. Observations:**

Between 2002-2007 MERITO staff participated in the following training programs and events:

- B-WET conference, National Marine Sanctuary Program (46 educators)
- Statewide conference of the Association for Environmental and Outdoor Educators in Sonoma CA (10 outdoor educators)
- National Association for Interpretation Region 9 Spring conference at Asilomar State beach (40 interpreters)
- Camp Sea Lab staff training session at CSUMB (10 naturalists)
- East Bay Environmental Education Network professional development conference at Oakland Zoo (25 educators)
- Presented at the National Marine Educators Association Conference (2003/2005)

### **c. Recommendations:**

Follow up on the outcomes of these opportunities. Expand and strengthen a network and forum on multicultural education & outreach on ocean-related issues. Develop a protocol to evaluate the impact of MERITO's participation in this kind of events.

### **d. Evaluation tools used:**

- Conference surveys



## Summary of Professional Development and Internship Program for 2002-2007

Between 2002-2007, MBNMS-MERITO delivered 8 professional development workshops on watershed and ocean resource issues, training 107 teachers and youth leaders, who serve underrepresented 5th - 8th grade youth, in after school programs. In the same period, MBNMS-MERITO hosted 7 interns, through a paid diversity- initiative internship program for Latino undergraduate and graduate students, in partnership with California State University Monterey Bay (CSUMB). MERITO staff also participated in several professional development events and trainings, directly interacting with 273 educators, naturalists, and interpreters. The MERITO team will continue to implement college internships and professional development for teachers through this program component. The goal is to host 2 interns per year and to continue advancing NOAA's strategic goal of encouraging and promoting careers in the environmental sciences among underrepresented communities.



# MULTICULTURAL OUTREACH FOR MBNMS JOINT MANAGEMENT PLAN REVIEW



The MBNMS Draft Management Plan was released to the public on October 2006. Following the release, hearings were held by MBNMS staff in several locations throughout the region to gather public comment. MERITO staff conducted over 15 Spanish-bilingual presentations on the release of the MBNMS draft management plan and on individual action plans focused on JMPR topics most relevant to Latino community members. The presentations were conducted through the Salinas Adult School and included sanctuary issues such as water quality, beach closures, cruise ship discharges, Marine Protected Areas, desalination, Davidson Seamount, wildlife disturbance, and multicultural education. Each presentation was followed by an interactive watershed model demonstration addressing urban runoff. At the end of the presentations, students provided written Spanish comments on the issues. 420 Spanish comments were received by the middle of December 2006 in support of: more sanctuary bilingual education throughout the county, inclusion of Davidson Seamount in the MBNMS, and Marine Protected Areas.

Two presentations on the draft management plan were also provided to local community leaders, such as La Union del Pueblo Entero (L.U.P.E.) Committee in Salinas. L.U.P.E. is a national non-profit organization that encourages the community, particularly the farm worker community, to become involved in finding solutions to community problems.



# MERITO OUTREACH PRODUCTS & MEDIA



## 1. MERITO Website

([www.montereybay.noaa.gov/educate/merito/welcome.html](http://www.montereybay.noaa.gov/educate/merito/welcome.html))

### a. Description & Need:

MERITO's website was developed and launched in 2003 with the purpose of serving as an outreach and advertising vehicle for the program. The website provides bilingual information about sanctuary issues, a description of MERITO program components, and contact information. It also hosts downloadable bilingual materials, program implementation reports and links to local and regional partner organizations and community groups involved in multicultural education and outreach on ocean and watershed related issues.

### b. Observations:

Although the website has been intended to serve as a useful educational (and bilingual) resource for Spanish-speaking communities, it hasn't been clearly determined how people use the site, who uses it, and for what purposes. Currently, the website content is dominated by lengthy narrative descriptions of program activities and components, some of which are outdated. This needs to be improved.

### c. Recommendations:

Formative evaluation about the use (or lack of use) of this website is necessary to better identify target audience groups for the site (e.g. teachers, students, funding providers, legislators...) and make the required adjustments to better serve the needs and preferences of each group of potential users. If the site is intended to be a research and education support tool for teachers and students, it also needs to be more interactive and regularly updated.

### d. Evaluation tools used:

- Hits to website

## 2. MERITO Academy Activity Guide & Resource Kit

### a. Description & Need:

The MERITO Activity Guide is an integral element of the MERITO Academy after school program, and it responds to an identified need for bilingual and culturally appropriate education curricula and outreach materials focusing on ocean and watershed related issues. The guide was developed and piloted at Pájaro Middle School in 2002, with ongoing feedback from the pilot program teacher, Melody Randel, and since then it has gone through several rounds of extensive professional editing.

The guide content is organized in six modules including a total of 35 tested lesson plans, approximately half of which can be conducted in the field (e.g. sand crab monitoring, mudflat lab, tide pool exploration, and water quality testing), and some of which become local community-service-learning projects, such as storm drain stenciling, beach and neighborhood clean ups, and native plant restoration. It also includes a teacher resource list highlighting existing curricula, books, videos and websites to supplement or extend lesson plan activities, and a contact list of local scientists partnering with MERITO to provide support for local field activities. The guide content is aligned with 5th-8th grade California State Standards in science, language arts, and English language development.

The MERITO Academy Resource Kit was developed for teachers and youth leaders facilitating after-school programs. The kit includes materials to help leaders implement watershed and ocean based activities, such as:

- Printed and electronic copies of the Activity Guide
- Sanctuary power point presentations and video clips to help introduce students to the diverse habitats and special characteristics of the Sanctuary
- Spanish-English bilingual children's book Coralito's Bay
- A poster of the MBNMS and the Grand Canyon of Monterey, and a coastal watershed map identifying the sanctuary's eleven coastal watersheds
- Natural History books on the MBNMS and Elkhorn Slough, plus bird, marine mammal, mudflat, and tidepool identification sheets
- Two decks of 72 MBNMS species cards that are the centerpiece of numerous Watershed Academy activities
- A water quality monitoring test kit, plus insect study nets and hand lenses

#### b. Observations:

The MERITO Academy Activity Guide and Resource Kit were designed to help teachers and youth leaders convey an intentional and meaningful connection to Monterey Bay watersheds and the national marine sanctuary, among culturally diverse students. The activity guide is currently under final revision to be published. In the near future it will be available online through the MERITO website.

#### c. Recommendations:

Complete Activity Guide revision.

#### d. Evaluation tools used:

- Incorporated in the MERITO Academy program evaluation plan.





### 3. *Coralito's Bay* Children's Book

#### a. Description & Need:

This bilingual (Spanish-English) children's book responds to an identified need for bilingual outreach materials focusing on ocean related issues. *Coralito's Bay* was written by renowned poet and author Juan Felipe Herrera and illustrated by artist Lena Shiffman, in 2003, and released June 2004. This full-color, 40 page children's book describes the story of a migrant child and his magical journey through the Monterey Bay National Marine Sanctuary in an adapted, underwater flower truck. Coralito encounters many of the marine characters living in the sanctuary, as well as, some of the impacts threatening these ocean residents. The book includes conservation messages about watersheds and oceans, information about the National Marine Sanctuary Program, regional marine education resources, and ways to "make your own journey" and get involved with ocean protection.

#### b. Observations:

*Coralito's Bay* has served teachers and students to "explore science through language and art," while enhancing English language development (ELD) among English learners. The marine-oriented story is richly woven around Hispanic family traditions, building a bridge between people and the ocean. Five hundred copies of *Coralito's Bay* have been distributed to migrant education programs and local school libraries in communities adjacent to the MBNMS. The book is also included in the MERITO Academy Resource Kit for use in science-based after school programs. *Coralito's Bay* retails for \$15.00 and is available at the Monterey Bay Sanctuary Foundation website, Monterey Bay Aquarium, Monterey Bay Kayaks, ESNERR's visitor center, Amazon.com, Borders and other local bookstores.

#### c. Recommendations:

Seek funding to produce more illustrated books like this.

#### d. Evaluation tools used:

- Incorporated in the MERITO Academy program evaluation plan

#### 4. MERITO Partnership with Monterey Bay Aquarium (MBA): Environmental Message Cartoon Contest

##### a. Description & Need:

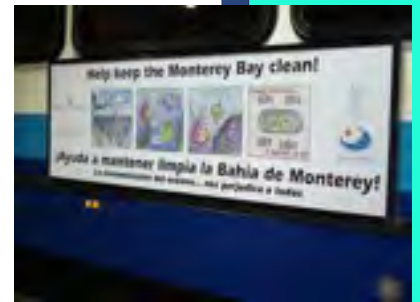
The idea of an environmental message cartoon contest was initiated at Channel Islands National Marine Sanctuary's MERITO Program in 2006. The goal of this cartoon contest was two-fold: 1) to educate the public about the importance of ocean stewardship, and 2) to use art and graphic design as an alternative educational tool to reinforce ocean literacy among contest participants (namely middle and high school students). In 2007 MBNMS-MERITO followed this idea working in collaboration with the Monterey Bay Aquarium's Latino Outreach program to support this public education effort. The contest solicited cartoon strips from middle and high school students in the central California counties of Monterey and Santa Cruz. Over two hundred cartoon entries were received supporting the theme of protecting watersheds, coastal areas, and ocean waters within the Monterey Bay National Marine Sanctuary. With financial support from MBA the winner cartoon was posted for public display as signs in Monterey County Public Buses.

##### b. Observations:

The MERITO-MBA partnership proved to be effective in promoting and advertising the contest. MBA covered the cost of advertisement tools including flyers, news press, TV, radio and printed ads related to the cartoon contest and their translations. MERITO promoted and advertised the contest among middle and high school art departments, city run programs, after school programs and partner organizations by phone, email and in person. MERITO provided 10 presentations to the first 5 teachers (each with more than one class) who committed to make the cartoon strip be a class assignment. Both MERITO and MBA coordinated and recruited the volunteer judging panel, which included scientists and educators representing the MBA and the MBNMS, together with local artist and art educator Jim Sarno.

An awards ceremony was organized at the MBA to honor the top 20 artists and announce the winner. The ceremony took place during the Aquarium's Día del Niño event. Before the MBA opened to the public the day of the ceremony, the top 20 artists took part in a special private drawing workshop led by well-known Chicano artist Jose G. Ortiz, who is the visual art director of the Alisal Center for the Fine Arts. The winning entry came from Lorena Herrera from Alisal High School in Salinas. She received \$200 and her cartoon was displayed on the side of Monterey-Salinas Transit buses. The bus adds also included bilingual text (in English and Spanish), developed by MBNMS education team, about behaviors that support ocean protection. It is estimated that 500,000 Monterey County residents, in addition to nearly 7 million annual Central Coast visitors, potentially saw these bus displays.

Six other contestants from Alisal and North Salinas High Schools, Monte Vista Christian School, Rolling Hills Middle School and Monterey Bay Charter School received the runner-up prizes (MBA free passes and gift certificates and passes to the MBA's summer programs) sponsored by the Monterey Bay Aquarium during the awards ceremony.



#### Outreach Products & Media



(Cont.) Cash prize to teacher with the most entries was donated by the MBSF. Supervisor Simon Salinas was invited to deliver the award to each student.

**c. Recommendations:**

Continue to partner with MBA's Latino Outreach program to support this public education effort. With future funding the cartoon can be used by both organizations to produce comic strips, posters, and t-shirts. Work with the Coastal Commission to make use of the cartoons during Coastal Cleanup Day.

**d. Evaluation tools used:**

- Number of contestants
- Visitor surveys at the Monterey Bay Aquarium
- Number of potential viewers of public bus signs



**5. Marine Conservation Worksheets for adult English language learners**

**a. Description & Need:**

Based on feedback and requests from Adult School teachers, two student worksheets were developed and used as a supplement to MERITO staff presentations, focusing on new vocabulary to diversify the language skills development among ESL students.

**b. Observations:**

These materials need to be better articulated as part of on-going ESL programming for adult students.

**c. Recommendations:**

In the future, these worksheets could be incorporated into a more comprehensive module with activities and 'lesson plans' for adult education teachers. Such module would be aligned with NOAA's Ocean Literacy Essential Principles and Fundamental Concepts, and the California State ESL teaching standards for different English language levels. The module would also allow teachers to better prepare for and follow up on sanctuary led presentations and field experiences.

**d. Evaluation tools used:**

- Oral feedback
- Pre and post presentation survey.
- A better evaluation protocol needs to be developed.

## 6. Newsletter Elements

Each year, MBNMS newsletters have included bilingual children's activities and articles relating to MERITO. As part of the on-going effort to integrate multicultural education into all of the sanctuary's outreach programs, the MBNMS newsletter will continue to highlight and explore topics relevant to our multicultural community.

## 7. Media Coverage

MBNMS-MERITO activities and programming have been highlighted through various forms of mass media, potentially reaching a large number of residents in the central coast of California.

### ***Newspapers***

Over 15 newspaper articles have celebrated MERITO's involvement with the community, particularly highlighting the MERITO Academy after school program, Coralito's Bay book release, the Environmental Message Cartoon Contest, MERITO's Field Experiences, MBNMS' multicultural education program partnerships with various local community events (i.e Coastal Clean Up, ESNERR's mother's day, Watsonville's Earth Day).

### ***TV Newstories***

- December 17, 2002 – KSBW Channel 8 – Interviews with Pajaro Middle School afterschool students at Watsonville Wetlands (3 mins).
- December 19, 2002 – KSMS Channel 67 (Spanish) – Interviews with Pajaro Middle School afterschool students at Watsonville Wetlands (10 mins).

### ***Radio PSA's***

- February 2003 - KLOK FM ran a series of 60 second PSA's on using a new environmentally-friendly carwash in Watsonville. The PSA campaign was a Joint project between MERITO and Save Our Shores.
- September 2003 – KSES 107.1FM Super Estrella ran a series of 30 second PSA's highlighting the September 20th Coastal Cleanup and the two bilingual sites.

### ***Websites***

References to the MERITO program and links to its website are featured in various partner websites:

- California Department of Education's California Regional Environmental Education Community Network (CREEC) – Region 5. (<http://science.santacruz.k12.ca.us/creec/spotlights.shtml>)
- National Marine Sanctuaries ([http://www.sanctuaries.noaa.gov/news/features/0706\\_merito.html](http://www.sanctuaries.noaa.gov/news/features/0706_merito.html))
- MBNMS's Sanctuary Integrated Monitoring Network (SIMoN) website (<http://www.mbnms-simon.org/sections/estuaries/education.php?sec=>)
- NOAA Costal Services Center (<http://www.csc.noaa.gov/magazine/2005/03/article3.html>)
- Marine Sanctuaries Media ([http://www.marinesanctuariesmedia.com/Monterey\\_Bay\\_education](http://www.marinesanctuariesmedia.com/Monterey_Bay_education))
- Monterey Bay Kayaks - News Press Release ([www.montereybaykayaks.com/news/press.php](http://www.montereybaykayaks.com/news/press.php))

**Outreach  
Products  
&  
Media**

## FUNDING AND FUTURE DIRECTIONS

### Summary of Funding

Different sources of funding have helped support staff time and operational aspects of the program. During 2002-2006 the program had enough funding to maintain 2 full-time staff positions. Funding reduction caused the loss of one of these staff positions during 2006-2007 (this position has now been reopened and a new program coordinator was hired in November 2007). Staff funding has come from NOAA's Office of National Marine Sanctuaries and Monterey Bay National Marine Sanctuary, but it is administered by the Monterey Bay Sanctuary Foundation (the program's fiscal sponsor). The National Marine Sanctuary Foundation has also assisted sanctuary staff to raise funds from foundations, corporate sponsors and federal grants to support and expand MERITO.

Operational aspects of the program have almost entirely been funded through grants and in kind support from partner organizations. The MBNMS received \$955,122 from grants and in kind support for MERITO implementation during 2002-2007. Summary below:

NOAA's Bay Watershed Education & Training (B-WET) Program 2004-2009	\$192,573
National Fish and Wildlife Foundation grant	\$35,000
Coastal Impact Assistance Program (State of CA)	\$50,000
McMahon Foundation	\$10,000
Ernest F. Hollings Ocean Awareness Trust Fund 2007-2008	\$25,000
Community Foundation of the Monterey Peninsula	\$10,000
Recreational Equipment Inc. 2007-2008	\$5,000
In-kind funds (partner staffing, busing and materials)	\$627,549
<b>TOTAL</b>	<b>\$955,122</b>

NOAA's Bay Watershed and Training (B-WET) program awards have helped support:

- Summer Teacher workshops "Incorporating Marine Research and Resource Issues into Public Education", in partnership with Moss Landing Marine Laboratory (2003-2004)
- MERITO Academy after school program (2004-2007)
- MERITO Academy teacher trainings (2004-2007)

The National Marine Sanctuary Foundation Education MiniGrant program awarded MERITO a grant in 2003 to initiate expansion of MERITO to the Channel Islands National Marine Sanctuary.

MERITO and Camp Sea Lab partnered in a NOAA Ocean Literacy Grant, and received funding to provide 48 scholarships for MERITO after-school program students to attend summer residential camps for 2007-2009.

## In-kind Support

- Elkhorn Slough National Estuarine Research Reserve provided program support (through weekly planning meetings, use of vehicles, conference room, lab facilities, tracking information, and overall staff support) for MERITO site-based programming and MERITO Academy teacher trainings.
- California Department of Parks & Recreation - Monterey District provided program support for the MERITO site-based program through planning meetings, input on program development, tracking information and overall staff support.
- NOAA's Coastal Services Center supported MERITO through funding for professional evaluation services to assist staff in developing an evaluation plan for all MERITO programs and projects. In addition, CSC provided a "Project Design and Evaluation" workshop in Monterey for MERITO partners and regional educators to learn how to apply performance measures to projects.
- MERITO staff is currently working with the local Monterey Bay Sanctuary Foundation and the National Marine Sanctuary Foundation on various fundraising strategies for MERITO programs.
- CSUMB Internship Program provided 8 paid bilingual interns.
- Monterey Bay Aquarium provided free entrances and staff support for after-school program each year. In 2007 the aquarium also provided funding for the cartoon contest.
- Monterey County Office of Education, the Pajaro Valley Unified School District, and Public and Private after-school programs supported the MERITO Academy After-school Program implementation by covering teacher salaries.
- City of Watsonville, Watsonville Wetlands Watch, and CSUMB's Return of the Natives supported the MERITO Academy After-school Program implementation by covering staff time.
- Monterey Bay Kayaks supported MERITO Family Field Experiences by providing free kayak rentals each year during the MERITO Kayak Day.



## Funding

## Future Directions

The Draft MBNMS Joint Management Plan Review (JMPR), released in October 2006 after extensive public consultation, contains several guidelines for MERITO implementation as part of the Ocean Literacy and Constituent Building Action Plan. This is a five-year strategic plan for implementation and expansion of multicultural education elements within MBNMS and to other sanctuaries. In addition to the JMPR guidelines, the following elements are currently being considered and drafted through a new needs assessment process focusing on community outreach at the Salinas valley region:

- Consolidate relationships and more permanent interaction with communities in Salinas
- Re-design Adult Education strategy
- Design and pilot a project-based community outreach strategy
- Enhance synergistic collaboration with other MBNMS programs; particularly, the Agriculture Water Quality Alliance (AWQA) and the Citizen Watershed Monitoring Network (CWMN).
- Media and Storytelling for multicultural ocean literacy (NSF grant proposal submitted)

## Regional Expansion of MERITO

MERITO staff from Channel Islands and Monterey Bay National Marine Sanctuaries will continue to collaborate on joint grant proposals and projects to stabilize and ensure continuity of existing programming at both sanctuaries. In the mid-term future regional inter-sanctuary collaboration will extend to Gulf of the Farallones and Cordell Bank National Marine Sanctuaries, in order to consolidate a regional network for multicultural ocean literacy outreach and constituency building. As the process of expansion gradually unfolds, the idea of a regional (and eventually national) MERITO Advisory Committee will be revisited.